Listing of Claims:

Claim 1. (currently amended) A method for forming an electrical conductor, comprising:
forming electrically conductive segments;

forming a row of windows in a planar surface, wherein each window is separated from a window next to it by a distance that is equal to or less than a predetermined critical length, L_c, selected to inhibit electromigration;

depositing electromigration-inhibiting material over the planar surface and into the windows to provide electro-migration inhibiting plugs in ~~such~~ said windows;

said plugs interposed between and abutting neighboring electrically conductive segments to connect and space neighboring segments by a distance significantly less than the length of a segment; and

removing portions of either or both of said plugs and said conductive segments such that said plugs and conductive segments have a coplanar surface;

wherein the conductor has a length, L, that is greater than the critical length, L_c, and wherein the row includes a number of windows is equal to or more than $(L/L_c)-1$.

Claim 2.(cancelled)

Claim 3. (cancelled)

Claim 4. (withdrawn) The method recited in claim 22 wherein the electrically conductive layer is patterned to form the electrically conductive segments connected by the plugs.

Claim 5. (withdrawn) The method recited in claim 1, wherein the electrically conductive film segments comprise multi-layer structures including one or more layers of electromigration-inhibiting refractory materials.

Claims 6 - 8 (cancelled)

Claim 9. (withdrawn) The method recited in claim 1 wherein the planar surface includes a dielectric layer having an electrical conductor disposed therein;

wherein the windows are formed in the electrical conductor thereby separating the electrical conductor into said plurality of electrically conductive segments;

wherein an electromigration-inhibiting material and an electrically conductive material are successively deposited over the dielectric layer, over the electrical conductor and into the windows to provide, in such windows, said plugs;

wherein portions of the deposited electromigration-inhibiting and electrically conductive materials are removed to form the plugs with surfaces co-planar with a surface of the dielectric layer and with surfaces of the electrically conductive segments.

Claim 10. (withdrawn)The method recited in claim 1 wherein an electromigration-inhibiting liner and an electrically conductive material are deposited successively into the windows to form said plugs.

Claim 11. (withdrawn)The method recited in claim 4 wherein an electromigration-inhibiting liner and an electrically conductive material are deposited successively into the windows to form said plugs.

Claims 12, 13 (Cancelled)

Claim 14. (withdrawn)A method comprising:

providing a layer of electrically conductive material having a planar surface;

removing portions of the electrically conductive material to form a plurality of rows of spaced apart aligned windows in the planar surface of the electrically conductive layer;

forming electromigration-inhibiting plugs in the windows, a portion of such plugs extending beyond the planar surface;

removing the portion of the said plugs extending beyond the planar surface to form the plugs with electrically conductive segments of the electrically conductive material electrically interconnected through the plugs, said plugs and electrically conductive segments having coplanar surfaces and together forming an electrical conductor having a length L, greater than a critical length Lc selected to inhibit electromigration, and wherein each row of windows includes a number of windows equal to or more than (L/Lc)-1.

Claim 15. (withdrawn)A method for forming a multiconductor metallization system with a minimum spacing between conductors less than one micron, the method comprising:

forming a plurality of equidistant rows of aligned windows in a planar surface;

forming electromigration-inhibiting plugs in the windows extending beyond the planar surface;

removing the portion of the said plugs extending beyond the planar surface to form the plugs with surfaces co-planar with surfaces of said planar surface surrounding the plugs;

forming electrically conductive segments coplanar with the planar surface, abutting and electrically interconnecting the plugs, each said segment having a length in the range 100 – 300 microns and the plugs separating neighboring segments by no more than about one micron.

Claim 16. (withdrawn) The method recited in claim 15, wherein the planar surface includes a dielectric layer having an electrical conductor disposed therein, and wherein the electrically conductive segments are formed by forming the windows in the electrical conductor.

Claims 17 – 21 (cancelled)

Claim 22. (withdrawn) The method of claim 1, wherein said row of aligned windows is formed by providing an electrically conductive layer with a planar surface and removing portions of the electrically conductive layer to form said row of aligned windows in the planar surface of the electrically conductive layer, said electrically conductive segments defined by portions of said electrically conductive layer disposed between neighboring windows.

Claim 23 (withdrawn)The method recited in claim 1, wherein each of said plugs comprises a liner of electro-migration inhibiting material filled with an electrically conductive material.

Claim 24. (withdrawn) The method recited in claim 23, wherein the electro-migration inhibiting material comprises a refractory metal.

Claim 25. (withdrawn) The method recited in claim 24, wherein the electro-migration inhibiting material comprises Ti, W, TiN, TiW, Mo or Ta.

Claim 26. (previously presented) The method recited in claim 1, wherein the electrically conductive segments comprise Al, CU, Au, or Ag or alloys thereof.

Claim 27. (previously presented) The method recited in claim 1, wherein the electrically conductive segments have lengths in the range 100 – 300 microns, and are spaced apart by said plugs by not more than about 1 micron.

Claim 28. (previously presented) The method as recited in claim 1, wherein said plugs are at least as wide as the widths of said electrically conductive segments.

Claim 29. (previously presented) A method for forming an electrical conductor having a length L, the electrical conductor including a plurality of electromigration-inhibiting plugs disposed between electrically conductive segments of the electrical conductor, comprising the steps of:

forming a row of aligned windows in a planar surface wherein neighboring ones of the windows are separated by at least a first distance and wherein the first distance is equal to or less than a critical length L_c, the critical length L_c being less than the length L and being selected to inhibit electromigration, and wherein the row includes a number of windows equal to or more than $(L/L_c)-1$;

depositing an electromigration-inhibiting material over the planar surface and through the windows to fill the windows and thereby provide, in such windows, plugs of electromigration-inhibiting material;

removing portions of the electromigration-inhibiting material to form the plugs with surfaces co-planar with a surface surrounding the plugs.

Claim 30. (previously presented) The method of claim 29 wherein the planar surface comprises a planar surface of an electrically conductive layer.

Claim 31. (previously presented) The method of claim 29 wherein the planar surface comprises a planar surface of a dielectric layer.

Claim 32. (withdrawn) A method of forming a conductive region, the method comprising:

forming a conductive layer of a first electrically conductive material on an insulating layer overlying a semiconductor region, the conductive layer including a substantially planar surface;

forming a plurality of windows in the planar surface of the conductive layer extending to said insulating layer;

filling each of the windows with electro-migration inhibiting plugs such that each plug is abutted against neighboring portions of the conductive layer, and wherein the electro-migration inhibiting plugs comprise a different material than the first electrically conductive material; and

planarizing the plugs so that surfaces of the plugs and the planar surface are substantially co-planar; and

removing portions of said conductive layer to define electrically conductive segments interconnecting said plugs, each said plug separating neighboring segments by a distance that is small compared to the length of a segment.

Claim 33. (withdrawn) The method of claim 32 wherein the electromigration-inhibiting material defines a liner in each of said windows, said liners being filled with an electrically conductive material to form said plugs .

Claim 34. (withdrawn) The method of claim 32 wherein the electromigration-inhibiting material is selected from the group consisting of Ti, W, TiN, TiW, Mo and Ta.

Claim 35. (withdrawn) The method of claim 32 wherein the electromigration-inhibiting material includes a refractory metal.

Claim 36. (withdrawn) The method of claim 32 wherein the first electrically conductive material is selected from the group consisting of Al, Cu, Au, Ag and their alloys.

Claim 37. (withdrawn) The method as recited in claim 32, wherein said plugs are wider than widths of said electrically conductive segments.

Claim 38. (withdrawn) The method as recited in claim 32, wherein said plugs are at least as wide as the widths of said electrically conductive segments.

Claim 39. (new) A method comprising:

forming a plurality of equidistant rows of aligned windows in a planar surface;

depositing electromigration-inhibiting material over the planar surface and into the windows to provide electro-migration inhibiting plugs in the windows extending beyond the planar surface;

removing the portion of the said plugs extending beyond the planar surface to form the plugs with surfaces co-planar with surfaces of said planar surface surrounding the plugs; and

forming electrically conductive segments coplanar with the planar surface, abutting and electrically interconnecting the plugs in each respective row of rows of windows containing said plugs, each said segment having a length in the range 100 – 300 microns and the plugs separating neighboring segments by a distance that is less than a critical length L_C equal to no more than about one micron,

wherein in each said row the conductive segments and plugs together form a conductor having a length L, and wherein in each said row there is a number of windows equal to or less than (L/ L_C) -1.

Claim 40. (new) The method recited in claim 39, wherein the planar surface includes a dielectric layer having an electrical conductor disposed therein, and wherein the electrically conductive segments are formed by forming the windows in the electrical conductor.

Claim 42 (new) A method comprising:

forming a conductive layer of a first electrically conductive material on an insulating layer overlying a semiconductor region, the conductive layer including a substantially planar surface;

forming a row of windows in the planar surface of the conductive layer extending to said insulating layer, wherein each window is separated from a window next to it by a distance that is equal to or less than a predetermined critical length, L_c, selected to inhibit electromigration;

filling each of the windows with electro-migration inhibiting plugs such that each plug is abutted against neighboring portions of the conductive layer, and wherein the electro-migration inhibiting plugs comprise a different material than the first electrically conductive material; and

planarizing the plugs so that surfaces of the plugs and the planar surface are substantially co-planar; and

removing portions of said conductive layer to define a conductor comprising electrically conductive segments interconnecting said plugs, each said plug separating neighboring segments by a distance that is small compared to the length of a segment,

wherein the conductor has a length, L that is greater than the critical length, L_c, and wherein the row includes a number of windows is equal to or more than (L/L_c)-l.